

REMARKS

1. Summary of Office Action

In the Office Action mailed January 25, 2006, claims 2-3 were objected to as being of improper dependent form; claim 4 was rejected under 35 U.S.C. § 112 as being indefinite; and all pending claims (claims 1-6, 9, 13-14, 16 and 18) were rejected under 35 U.S.C. § 103(a) as being obvious over Gilhousen (U.S. Patent Number 5,280,472) in view of Komara (U.S. Patent Number 6,088,570) in further in view of Sourour (U.S. Patent Number 6,560,273) in further view of Wheatley (U.S. Patent Number 5,577,265).

Claims 2-4, 7-8, 10-12 15 and 17 have been canceled. Claims 1, 5-6, 9, 13-14, 16 and 18 (of which claims 1, 6, 10 and 13 are independent) are currently pending.

2. Examiner Interview

Applicant thanks the Examiner and his Supervisor for the telephonic interview conducted on March 21, 2006. Applicant discussed the prosecution of the present application up to this point with the Examiner and his Supervisor.

In particular, within two previously received Office Actions, the Examiner had objected to claims 8-9 and 15 as being dependent upon a rejected base claim but allowable if rewritten in independent form. Applicant amended the independent claims to seemingly include allowable subject matter within either claim 8, 9 or 15, in reliance on the Examiner's indication that in doing so, the claims would be allowed. However, within the next Office Action, the Examiner again rejected this claims, this time using an additional reference, but the Examiner still indicated that claims 8-9 and 15 would be allowable if rewritten.

Applicant then had a telephonic interview on September 28, 2005 with the Examiner, during which Applicant discussed with the Examiner making these amendments, and the Examiner indicated that doing so would make the claims allowable over the cited art.

As a result, Applicant complied with all of the Examiner's suggestions and comments and even filed an RCE to ensure that the amendments were considered; yet, within the present Office Action mailed January 25, 2006, the Examiner again rejected all pending claims using the same references and the same rejections. This time, however, the Examiner removed the indication that claims 8-9 and 15 contain allowable subject matter.

During the telephonic interview on March 21, 2006, Applicant inquired as to why the Examiner changed his position. The Examiner indicated that after seeing the claim amendments, he still believed the claims were obvious in view of the cited art, and thus changed his mind about the allowable subject matter. The Examiner apologized for any inconvenience that the Applicant may have suffered (namely, the expense of filing an RCE in reliance on the Examiner's statements), however, and indicated that in the event that the Examiner does not find Applicant's arguments in response to the present Office Action persuasive, the Examiner would issue a non-final Office Action clearly indicating how and why each and every claim is not allowable over the cited art.

3. Response to Claim Objections

Claims 2 and 3 were objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claims 2-3 have been canceled.

4. Response to 35 U.S.C. § 112 Claim Rejections

Claim 4 was rejected 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claim 4 has been canceled.

5. Response to 35 U.S.C. § 103(a) Claim Rejections

All pending claims were rejected under 35 U.S.C. § 103(a) as being obvious over Gilhousen in view of Komara in further in view of Sourour in further view of Wheatley.

The standard for obviousness, 35 U.S.C. § 103(a), provides that an invention is not patentable “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.”

The test for obviousness is well known. The obviousness inquiry requires: (1) an inquiry into the scope and content of the prior art; (2) identification of the differences between the prior art and the claimed invention; (3) determination of the level of ordinary skill in the art at the time of the invention; and (4) consideration of objective evidence of secondary considerations. Graham v. John Deere Co., 383 U.S. 1, 17 (1966). The PTO has the burden of establishing a prima facie case of obviousness. In re Fine, 837 F.2d 1071, 1074 (Fed. Cir. 1988).

Relating to the first inquiry, when obviousness is based on the teachings of multiple references, there must be a “suggestion, teaching, or motivation” that would have led a person of ordinary skill in the art to combine the relevant teachings in the manner claimed. Tec Air, Inc. v. Denso Mfg. Mich. Inc., 192 F.3d 1353, 1359-60 (Fed.Cir.1999). In other words, the “examiner

must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.” In re Rouffet, 149 F.3d 1350, 1357.

The use of hindsight is impermissible. “Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.” In re Dembiczak, 175 F.3d 994, 999 (Fed. Cir. 1999); see also Ruiz v. A.B. Chance Co., 234 F.3d 654, 665 (Fed. Cir. 2000). This is because “[c]ombining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.” In re Dembiczak, 175 F.3d 994, 999 (Fed. Cir. 1999).

Relating to the second inquiry, the focus is not merely on the differences between the claimed invention and the prior art, but on the claimed “subject matter as a whole.” Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1565 (Fed. Cir. 1987). A patent claim is obvious, and thus invalid, when the differences between the claimed invention and the prior art “are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.” 35 U.S.C. § 103; see also Graham v. John Deere Co., 383 U.S. 1, 13, 86 S.Ct. 684, 692, 15 L.Ed.2d 545 (1966); In re Dembiczak, 175 F.3d 994, 998 (Fed.Cir.1999). Whether or not changes from the prior art are “minor,” they must be evaluated in terms of the whole invention including whether the prior art provides any teaching or suggestion to one of ordinary skill in the art to make the changes that would produce the patentee’s method and device. Northern Telecom Inc. v. Datapoint Corp., 908 F.2d 931, 935 (Fed. Cir. 1990).

Relating to the third inquiry, a person of ordinary skill in the art is presumed to be one who thinks along the line of conventional wisdom in the art and is not one who undertakes to innovate, whether by patent and often expensive, systematic research or obviousness. Standard Oil Co. v. American Cyanamid, 774 F.2d 448, 454 (Fed. Cir. 1985). “[T]he level of skill in the art is a prism or lens through which a judge or jury view the prior art and the claimed invention. This reference point prevents deciders from using their own insight or, worse yet, hindsight, to gauge obviousness. Rarely, however, will the skill in the art component operate to supply missing knowledge or prior art to reach an obviousness judgment. Skill in the art does not act as a bridge over gaps in substantive presentation of an obviousness case, but instead supplies the primary guarantee of objectivity in the process.” Al-Site Corp. v. VSI Intern., Inc. 174 F.3d 1308, 1324 (Fed. Cir. 1999).

With respect to the pending claims, Applicant submits (A) that the cited combination does not teach or suggest each and every recited claim limitation within the present claims, and (B) that there is no “suggestion, teaching, or motivation” that would have led a person of ordinary skill in the art to combine and modify the cited art in the way the Examiner proposes so as to arrive at the claimed invention.

A. The cited combination does not teach or suggest all claim limitations

Independent Claim 1. Claim 1 recites three distinct steps that are not taught by the cited combination of references. The cited combination does not teach or suggest a method for receiving wireless signals including, at each finger,

- (i) implementing a varying delay on the signal corresponding to the amount of time for the signal to travel to the receiver, the delay varying over a first predetermined range of values;
- (ii) measuring a signal power level of the signal; and
- (iii) resetting the delay to a value corresponding to the highest measured signal power level of the signal for further operation of the receiver.

The Examiner cited to Gilhousen and Komara to show a few limitations of claim 1; however, the Examiner then stated that “Gilhousen in view of Komara does not disclose implementing the delay on the signal corresponding to the amount of time for the signal to travel to the receiver,” (referring to claim limitation (i) above). (Office Action, 1.25.06, p. 5). The Examiner asserted that Sourour teaches this claim limitation. Applicant disagrees.

Sourour teaches a rake receiver for operating in a multipath fading channel, where each rake finger utilizes a select assigned delay to synchronize to a delay of a channel path. A searcher periodically performs a channel search on the received signal to detect new delays of strongest paths in the channel. Trackers adjust the select assigned delays between searches performed by the searcher. A delay controller then compares new delays of the strongest paths from the searcher to the select assigned delays and reassigns one of the select assigned delays with one of the new delays only if the new delay differs from the one select assigned delay more than a predetermined threshold. (Abstract).

This teaching does not discuss “implementing a varying delay on the signal corresponding to the amount of time for the signal to travel to the receiver,” as in claim 1. The delays implemented in Sourour have no relation to the amount of time for a signal to travel to the receiver.

The Examiner also mentioned that Sourour also discloses that “the searcher [measures] the signal strength of the multipath signals to determine the strongest path (Column 1, lines 59-67 & Column 3, lines 64-67 & Column 4, lines 1-7).” (Office Action, 1.25.06, p. 5). None of these cited sections even discuss measuring a signal strength of a received signal. Applicant requests the Examiner to review the sections for further clarity.

The Examiner has not cited to any reference that teaches at each finger of a rake receiver, “(i) implementing a varying delay on the signal corresponding to the amount of time for the signal to travel to the receiver, the delay varying over a first predetermined range of values; (ii) measuring a signal power level of the signal; and (iii) resetting the delay to a value corresponding to the highest measured signal power level of the signal for further operation of the receiver,” as in claim 1. Gilhousen, Komara, and Wheatley were each cited for other reasons. Thus, the cited combination of Gilhousen, Komara, Wheatley and Sourour fails to teach or suggest all claim limitations of claim 1.

Dependent Claims 2 and 5. Claims 2 and 5 are dependent from claim 1, and thus are non-obvious in view of the cited combination of references for at least the reasons discussed above.

Independent Claim 6. Claim 6 recites three distinct elements that are not taught by the cited combination of references. The cited combination does not teach or suggest a rake receiver circuit for receiving multi-path signals including:

- a first rake finger circuit having a first variable delay element ... configured to receive a first delay control signal ... being selected to align a first delay introduced by the first variable delay element with a first multi-path signal to produce a first correlated data signal,

- a second rake finger circuit having a second variable delay element ... configured to receive a second delay control signal ... being selected to align a second delay introduced by the second variable delay element with a second multi-path signal to produce a second correlated data signal,
- a scan control circuit configured to generate the first delay control signal by,
 - (i) varying the first delay control signal over a first predetermined range of values,
 - (ii) measuring a signal power level of the first correlated data signal to determine a value of the first delay control signal corresponding to a highest measured signal power level of the first correlated data signal, and
 - (iii) setting the first delay control signal to the value of the first delay control signal corresponding to the highest measured signal power level of the first correlated data signal for operation,
 and to generate the second delay control signal in a similar manner using the second correlated data signal.

The Examiner cited to Gilhousen to show a few limitations of claim 6, and then stated that Gilhousen, however, “does not disclose calculating an amount of time for a signal to travel to a receiver ...” (Office Action, 1.25.06, p. 6). The Examiner then cited to Komara to show calculating an amount of time for a signal to travel to a receiver. Claim 6 does not include any language relating to the subject matter asserted from Gilhousen and Komara. Thus, the citations to Gilhousen and Komara regarding claim 6 are irrelevant. In fact, much of the Examiner’s discussion of claim 6 (including the citations to Gilhousen, Komara and Wheatley) has simply been cut and pasted from the Examiner’s discussion of claim 1. However, claim 6 includes claim

limitations not found within claim 1. Applicant requests that the Examiner review claim 6 for further clarity.

The Examiner did cite to Sourour as allegedly teaching a receiver circuit including a “scan control circuit configured to receive the first and second correlated signals and, responsive thereto, generate the first and second delay control signals (Fig. 2, elements 30, 32, 34).” (Office Action, 1.25.06, p. 10). Elements 30, 32 and 34 include a searcher, finger location controller and rake receiver. Sourour teaches that, for a rake finger to demodulate the signal from one channel path, the finger must be able to synchronize to a delay of the path. Particularly, the delay searcher 30 makes a periodic search over a wide range of channel delays and finds the delays of new strong paths in the channel. The delays then assigned to the rake receiver 24 are determined by the finger location controller 32, rather than the searcher 30. In contrast to the Examiner’s allegations, this discussion does not teach a “scan control circuit configured to receive the first and second correlated signals and, responsive thereto, generate the first and second delay control signals.” Rather, Sourour teaches that the searcher and the finger location controller operate independently.

Furthermore, as discussed above, any delay control signal allegedly taught by Sourour is not generated by “(i) varying the first delay control signal over a first predetermined range of values, (ii) measuring a signal power level of the first correlated data signal to determine a value of the first delay control signal corresponding to a highest measured signal power level of the first correlated data signal, and (iii) setting the first delay control signal to the value of the first delay control signal corresponding to the highest measured signal power level of the first correlated data signal for operation,” as recited in claim 6.

As it presently stands, the Examiner has not cited to any reference that teaches a first rake finger circuit, a second rake finger circuit and a scan control circuit, as recited in claim 6. Thus, the cited combination of Gilhousen, Komara, Wheatley and Sourour fails to teach or suggest all claim limitations of claim 6.

Dependent Claim 9. Claim 9 is dependent from claim 6, and thus is non-obvious in view of the cited combination of references for at least the reasons discussed above.

Independent Claim 13. Claim 13 recites three distinct steps that are not taught by the cited combination of references. The cited combination does not teach or suggest a method for receiving a plurality of multi-path signals in a rake receiver including:

- (i) varying the variable delay over a predetermined range of values;
- (ii) measuring an output power level of the finger of the rake receiver at each value to identify a high output power level of the finger; and
- (iii) setting a delay of the variable delay to correspond to the value having the high output power level of the finger, the delay corresponding to one of the plurality of multi-path signals.

The Examiner rejected claim 13 using the same analysis with regard to claim 1. Thus, for at least the reasons discussed above, claim 13 is also non-obvious over the cited combination of references.

Dependent Claims 14 and 16. Claims 14 and 16 are dependent from claim 13, and thus are non-obvious in view of the cited combination of references for at least the reasons discussed above.

Dependent Claim 18. Claim 18 is dependent from claim 13, and thus is non-obvious in view of the cited combination of references for at least the reasons discussed above. Further,

claim 18 recites “wherein the first delay and the second delay are selected so that the first correlated data signal and the second correlated data signal arrive at the summing circuit at substantially the same time.” The Examiner cited to Gilhousen as allegedly anticipating this claim limitation by teaching resolution of a signal at the receiver that “includes a combiner summing outputs of the plurality of fingers to recover a transmitted signal.” (Office Action, 1.25.06, p.7).

Gilhousen teaches that outputs of receivers 210 and 212 are provided to diversity combiner and decoder circuitry, and that the diversity combiner circuitry “simply adjusts the timing of the two streams of received symbols into alignment and adds them together.” (Col. 25, lines 43-45). Gilhousen makes no mention of when the signals arrive at the circuit, and thus does not teach that “the first delay and the second delay are selected so that the first correlated data signal and the second correlated data signal arrive at the summing circuit at substantially the same time,” as in claim 18. Thus, claim 18 is non-obvious over the cited combination of references, for both this reason and the reasons discussed above with regard to claim 13.

B. There is no motivation to combine the cited art in the manner claimed

The Examiner has not shown reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited references for combination in the manner claimed. The Examiner’s conclusions are the result of impermissible hindsight-based obviousness analysis. Applicant requests the Examiner to consider references independent of Applicant’s disclosure.


6. Summary

Applicant respectfully submits that, in view of the remarks above, all of the pending claims are in condition for allowance. Applicant therefore respectfully requests such action. The Examiner is invited to call the undersigned at (312) 913-3331 with any questions or comments.

Respectfully submitted,

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Date: 4/12/06

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